

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (canceled)

2. (currently amended) An isolated nucleic acid sequence comprising:

- a) ~~a~~ the nucleic acid sequence SEQ ID NO:1; or
- b) the sacABCDEFGH operon of SEQ ID NO:1; or
- c) ~~at least one of~~ the *sacA*, *sacB*, *sacC*, *sacD*, *sacE*, *sacF*, *sacG*, and *sacH*, ~~*sacI*, *sacJ*~~, ~~*orf1*, *orf2*, *orf3* or *orf4*~~ genes of SEQ ID NO:1; or
- e) ~~a~~ d the nucleic acid sequence encoding ~~any of the~~ SacA, SacB, SacC, SacD, SacE, SacF, SacG, and SacH, ~~SacI, SacJ~~, Orf1, Orf2, Orf3 ~~or Orf4~~ proteins (SEQ ID NO:2-15) (SEQ ID NO:2-9) encoded in SEQ ID NO:1; or
- d) ~~a contiguous portion of SEQ ID NO: 1 encoding a non-ribosomal peptide synthetase which comprises the peptide synthetase core sequences: SGTTG (SEQ ID NO:27), GELCIGG (SEQ ID NO:28), TGD, RIELGEIE (SEQ ID NO:29) and LGGHS (SEQ ID NO:30); or~~
- e) ~~a nucleic acid sequence encoding a non-ribosomal peptide synthetase with at least 95% homology with the polypeptide encoded by the *sacA*, *sacB* or *sacC* genes included in SEQ ID NO: 1 wherein said polypeptide comprises the peptide synthetase core sequences: SGTTG (SEQ ID NO:27), GELCIGG (SEQ ID NO:28), TGD, RIELGEIE (SEQ ID NO:29) and LGGHS(SEQ ID NO:30); or~~

~~f)-a~~ e) the nucleic acid sequence which is ~~a~~ the full complement to the sequence in a), b), c), or d)~~or e)~~.

3. (canceled)

4. (currently amended) The nucleic acid sequence according to claim 2, wherein the nucleic acid sequence comprises:

a) the nucleic acid sequence SEQ ID NO:1; or

~~b) at least one of the *sacA*, *sacB*, *sacC*, *sacD*, *sacE*, *sacF*, *sacG*, *sacH*, *sacI*, *sacJ*, *orf1*, *orf2*, *orf3* or *orf4* genes; or~~

~~e) a nucleic acid sequence encoding any of SacA, SacB, SacC, SacD, SacE, SacF, SacG, SacH, SacI, SacJ, Orf1, Orf2, Orf3 or Orf4 proteins (SEQ ID NO:2-15); or~~

~~d)~~ b) the nucleic acid sequence which is ~~a~~ the full complement to the sequence in a), ~~b), or e)~~.

5-6. (canceled)

7. (previously presented) The nucleic acid sequence according to claim 2, wherein the nucleic acid sequence encodes a peptide synthetase, a L-Tyr derivative hydroxylase, a L-Tyr derivative methylase, a L-Tyr O-methylase, a methyl-transferase or a monooxygenase or a safracin resistance protein.

8-17. (canceled)

18. (previously presented) A vector comprising the nucleic acid sequence of claim 2.
19. (original) The vector according to claim 18 which is an expression vector.
20. (original) The vector according to claim 18 which is a cosmid.
21. (previously presented) A recombinant host cell transformed with one or more nucleic acid sequences according to claim 2.
22. (previously presented) A recombinant host cell comprising a vector of claim 18.
23. (previously presented) The recombinant host cell according to claim 22 wherein the host cell is transformed with an exogenous nucleic acid comprising a gene cluster encoding polypeptides sufficient to direct the synthesis of a safracin.
24. (previously presented) The recombinant host cell according to claim 22 which is a microorganism.
25. (previously presented) The recombinant host cell according to claim 24 which is a bacterium.
26. (previously presented) A recombinant bacterial host cell in which at least a portion of a nucleic acid sequence of claim 2 is disrupted to result in a recombinant host cell that produces

altered levels of safracin compound or safracin analogue, relative to a corresponding nonrecombinant bacterial host cell.

27. (original) The recombinant cell of claim 26, wherein the disrupted nucleic acid sequence is endogenous.

28. (canceled)

29. (withdrawn) A method of producing a safracin compound or safracin analogue comprising fermenting an organism in which expression of genes encoding polypeptides sufficient to direct the synthesis of a safracin or safracin analogue has been modulated by manipulation or replacement of one or more genes or sequence responsible for regulating such expression.

30-31. (canceled)

32. (previously presented) A composition comprising at least one nucleic acid sequence according to claim 2.

33. (withdrawn) A method of combinatorial biosynthesis comprising use of a composition according to claim 32 for the combinatorial biosynthesis of one or more of non-ribosomal peptide synthetases, diketopiperazine rings and safracins.

34. (withdrawn) Use of P2, P14, analogs and derivatives thereof in combinatorial biosynthesis of

one or more of non-ribosomal peptide synthetases, diketopiperazine rings and safracins.

35-42. (canceled)

43. (currently amended) The nucleic acid according to claim 2 wherein the nucleic acid sequence comprises ~~at least one of the *sacABCDEFGH* operon or *sacIJ* operons.~~ operon.

44-45. (canceled)

46. (currently amended) The nucleic acid sequence according to ~~claim 44~~ claim 2 which comprises *sacA*, *sacB*, *sacC*, *sacD*, *sacE*, *sacF*, *sacG*, *sacH*, *sacI* and *sacJ* genes.

47. (currently amended) The nucleic acid sequence according to ~~claim 44~~ claim 2 which comprises *sacA*, *sacB*, *sacC*, *sacD*, *sacE*, *sacF*, *sacG*, *sacH*, *sacI*, *sacJ*, *orf1*, *orf2*, *orf3* and *orf4* genes.

48. (previously presented) The nucleic acid according to claim 46 or 47 wherein *sacI* gene is disrupted.

49. (previously presented) The nucleic acid according to claim 46 or 47 wherein *sacJ* gene is disrupted.

50. (previously presented) The nucleic acid according to claim 46 or 47 wherein *sacI* gene is disrupted and expression of *sacJ* gene has been reconstituted.

51. (previously presented) The nucleic acid according to claim 46 or 47 wherein *sacF* gene and/or *sacG* gene has been disrupted.

52. (previously presented) The nucleic acid sequence according to claim 2 wherein the nucleic acid sequence comprises SEQ ID NO: 1.

53. (new) An isolated nucleic acid sequence comprising:

- a) the nucleic acid sequence SEQ ID NO:1; or
- b) the *sac*ABCDEFGH operon of SEQ ID NO:1; or
- c) the nucleic acid sequence which is the full complement to the sequence in a) or b).

54. (new) The recombinant host cell according to claim 25 which is *Pseudomonas* sp.